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**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Application Number: 10/616,759
Filing Date: July 09, 2003
Appellant(s): NG ET AL.

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For Appellant

EXAMINER'S ANSWER

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This is in response to the appeal brief filed 5/30/2008 appealing from the Office action mailed 4/2/2008.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The Appellant's after final amendment has been entered.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is substantially correct. The changes are as follows:

The following grounds of rejection are not presented for review on appeal because they have been withdrawn by the examiner: The rejection of claim 22 under 35 U.S.C. 103(a) over Shiiki has been withdrawn.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

20050093430	Ibbetson et al.	5-2005
20030098651	Lin et al.	5-2003
20020080501	Kawae et al.	6-2002
20010000622	Reeh et al.	5-2001
6,762,551	Shiiki et al.	7-2004
6,630,691	Mueller-Mach et al.(Mach)	10-2003

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

1. Claims 7, 19, 21, 22, 24, and 23 are rejected under 35 U.S.C. 102(b) as being anticipated by Kawae (previously cited).

- a. As to claim 7, 21 Kawae teaches mounting a chip having a primary light source on a substrate, said primary light source emitting light of a first wavelength (see e.g. item 3fig. 9 and 10). Connecting power terminal on said chip to corresponding power

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terminals on said substrate for powering said light source (see items 1 and 2 e.g. fig. 9 and 10). and mounting a preformed transparent cap over said chip, said cap comprising a wavelength converting material for converting a portion of said first wavelength to a second wavelength, wherein the said transparent cap comprises a spherical surface and has a constant thickness (see e.g. fig. 9 and 10 and paragraph 59 items 6 and 7). Kawae teaches the phosphors are suspended in a clear material (see e.g. fig. 9).

b. As to claim 19, Kawae teaches an LED.

c. As to claim, 24 Kawae teaches a uniform planar cap (see e.g. fig. 8).

d. As to claim 23, Kawae teaches a LED placed in an inverted cavity (reflector cup) (see e.g. fig. 10).

2. Claims 7, 18-21, and 23-24 are rejected under 35 U.S.C. 102(e) as being anticipated by Ibbetson (US 20050093430).

a. As to claims 7, Ibbetson teaches a method for fabricating a light source comprising: mounting a chip having a primary light source on a substrate, said primary light source emitting light of a first wavelength (see e.g. paragraphs 37 and 38); connecting power terminals on said chip to corresponding power terminals on said substrate for powering said primary light source (see e.g. paragraph 37 and 38); and mounting a preformed transparent cap over said chip, said cap comprising a wavelength-converting material for converting a portion of said light of said first wavelength to a second wavelength, wherein said transparent cap comprises a spherical surface and has a constant thickness (see e.g. fig. 5 item 38 and paragraph 50).

b. As to claims 18 and 21, Ibbetson teaches clear glass (see e.g. claim 6).

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- c. As to claims 19 and 20, Ibbetson teaches lasers and LEDs (see e.g. paragraph 36).
 - d. As to claim 23, Ibbetson teaches an inverted cavity (see e.g. fig. 5 item 14).
 - d. As to claim 24, Ibbetson teaches the same method as claim 7 but with planar sheet (see e.g. fig. 10 and 16 items 98 118 and 21).
3. Claim 24 rejected under 35 U.S.C. 102(e) as being anticipated by Shiiki (previously cited).
- a. As to claim 24, Shiiki teaches a method for fabricating a light source comprising: mounting a chip having a primary light source on a substrate, said primary light source emitting light of a first wavelength (fig. 4 items 3,4 and intervening portion); connecting power terminals on said chip to corresponding power terminals on said substrate for powering said primary light source (see e.g. fig. 4 items 3 and 4 with wire bonds); and mounting a preformed transparent cap over said chip, said cap comprising a wavelength-converting material for converting a portion of said light of said first wavelength to a second wavelength, wherein said transparent cap comprises a planar cap and has a constant thickness (see e.g. item 5).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 18, 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kawae in view of Lin (previously cited).

a. As to claim 18, Kawae teaches plastic (see e.g. paragraph 45). Kawae does not teach glass.

Lin teaches a glass encapsulant (see e.g. claim 4).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to have used a glass encapsulant of Lin to create the phosphor cap of Kawae.

One would have been so motivated in order to provide a more durable cap, and further glass would have been desired for its optical properties.

b. As to claim 20, Kawae teaches an LED does not explicitly teach a laser diode.

Lin teaches encapsulating a laser diode (see e.g. paragraph 16).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to have encapsulated lasers of Lin using the method of Kawae.

One would have been so motivated in order to provide a cover at a reduced cost for lasers as well as LEDs (see paragraph 5 of Kawae).

6. Claim 22 and 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Reeh (2001/0000622) in view of Mach (6,630,691).

a. As to claims 22 and 24, Reeh teach mounting a chip on a substrate, connecting power terminals to the chip and mounting a transparent cap over with (see e.g. item 4/6) a

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down converter (see e.g. fig. 6 item 4/6). The LED emits in a blue/green wavelength (see e.g. abstract and the cap converts the wave length into longer wavelengths (see e.g. abstract).

Reeh is silent in regards to the thickness of the down converter, but does recite a lens on the down converter layer 4/6.

Assuming *arguendo*, that the Reeh reference must be interpreted so narrowly as to not teach a constant thickness, it would have been obvious to one of ordinary skill in the art at the time of the invention to have formed layer 4/6 of constant thickness. One would have been so motivated in order to provide a flat surface for applying the lens increasing overall performance of the lens.

Reeh teaches a YAG:Ce down converter/phosphor in the cap (item 4/6). Reeh is silent in regards to whether it is a single crystal. Reeh does teach the cap may be an epoxy/plastic with particles of YAG:Ce (see e.g. paragraph 89).

Mach teaches that a single crystal layers of YAG:Ce maybe used as a phosphor (see e.g. abstract and item 10). Further Mach teaches that it is difficult to get uniform white light with, transparent caps like Reeh, epoxy treated with phosphor particles (see e.g. background section). Mach further teaches that the single crystal layer phosphor allows for uniform white light to be produced (see e.g. description of item 10)

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to have formed the transparent cap, layer 4/6 of Reeh using a layer of single crystal YAG:Ce of Mach. One would have been so motivated since it would have

provided a long life device that allows uniform color control of the outputted white light (see e.g. summary section and description of item 10).

(10) Response to Argument

A. As to claim 7, Appellant argues that Kawae teaches a thickness of an indeterminate thickness and not a constant thickness. This argument is not found convincing. Kawae teaches in paragraph 59 that the prior art's (figs. 9 and 10) color is disadvantageously irregular due to the cover which has entirely the same thickness or constant thickness. Kawae therefore indicates that a constant thickness spherical was known in the art. Therefore Appellant's arguments are not convincing.

As to claim 24, Appellant argues that the cap in figure 8 is not of a constant thickness. This is not found convincing. It has been established that proportions of features in a drawing are not evidence of actual proportions when the drawings are not to scale (MPEP 2125). However, the description of the article pictured can be relied on, in combination with the drawings, for what they would reasonably teach one of ordinary skill in the art (see e.g. *In re Wright*, 569 F.2d 1124, 193 USPQ 332 (CCPA 1977)). In this case, Kawae makes a clear distinction between uniform and varied (see e.g. fig. 9 vs. fig. 7 and paragraph 59). With such a distinction provided by Kawae, one of ordinary skill in the art would therefore conclude that if Kawae intended the planar portion of figure 8 to be varied, Kawae would have illustrated this within the figure. Thus, one of

ordinary skill in the art would conclude that the planar portion of Kawae's figure 8 is intended to be uniform.

Regarding Appellant's argument for rejection of claims 19, 21, and 23 under 35 U.S.C. 102(b) as being anticipated by Kawae (2002/0080501):

Since Appellant's arguments are identical to those for claim 7, the arguments are not persuasive for the reasons stated hereinabove.

B. As to claim 7, Appellant argues that Ibbetson does not teach a constant thickness. Ibbetson teaches in paragraph 50 that caps (items 38 and 40) "...preferably have uniform thicknesses throughout." The reference does not need to be *ipsis verbis* in regards to constant thickness. If a skilled artisan would have understood the inventor to be in possession of the claimed invention at the time of filing, even if every nuance of the claims is not explicitly described in the specification, then the adequate description requirement is met. See, e.g., *Vas-Cath*, 935 F.2d at 1563, 19 USPQ2d at 1116; *Martin v. Johnson*, 454 F.2d 746, 751, 172 USPQ 391, 395 (CCPA 1972) (stating "the description need not be in *ipsis verbis* [i.e., "in the same words"] to be sufficient"). In this case Ibbetson does not recite a "constant thickness" however with the recitation of "uniform thickness" in conjunction with Ibbetson's figures a skilled artisan would have understood that Ibbetson was in possession of a cap of "constant thickness." Therefore Ibbetson's description would anticipate the claim.

Regarding claim 24, Appellant argues that Ibbetson teaches the thickness may vary depending on the type and dimension of the light source. This argument is not

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commensurate with the scope of the rejection since element 44 refers to a spherical cap (see e.g. fig. 4) and not a planar cap as claimed. Therefore, Ibbetson evidence cited by Appellant is drawn to the wrong embodiment. The planar caps of Ibbetson are found in figures 9-16. These figures do not refer to element 44. Instead, the planar cap, element 136, is described as generally having consistent thickness. From the figures and the specification, this would indicate the caps in figures 9-12 are also of consistent thickness.

Assuming that Appellant's argument above was in fact intended in regards to claim 7, the Examiner still finds this not persuasive. Ibbetson states in paragraph 52:

The optimum value for distances 42 and thickness 44 depends on the type and dimensions of light source 12 and submount 14. Distance 42 is chosen to allow for light source 12 to provide a higher intensity of light without generating excessive heat which can damage conversion particles 22. Heat can damage conversion particles 22 if conversion material region 21 is positioned too close to light source 12.

One of ordinary skill in the art would not interpret this to imply the thickness varies. One of ordinary skill in would interpret this to imply that the **constant/uniform thickness** described in paragraph 50 depends on the light source size and type of the light source being used in a particular application; not that the thickness varies within a single device.

Regarding Appellant's argument for rejection of claims 18-21, and 23 under 35 U.S.C. 102(e) as being anticipated by Ibbetson (2005/0093430):

Since Appellant's arguments are identical to those for claim 7, the arguments are not persuasive for the reasons stated hereinabove.

C. In regards to claim 24, Appellant argues that Shiiki's layer 5 is not a constant thickness (see e.g. fig. 3). Further, Appellant argues it is not reasonable to interpret layer 5 as being constant thickness based on the lack of optical shaping and the recitation in Shiiki of element 5 being a "layer." These arguments are not found convincing. It has been established that proportions of features in a drawing are not evidence of actual proportions when the drawings are not to scale (MPEP 2125). However, the description of the article pictured can be relied on, in combination with the drawings, for what they would reasonably teach one of ordinary skill in the art (see e.g. *In re Wright*, 569 F.2d 1124, 193 USPQ 332 (CCPA 1977)). Shiiki show use of variation of sizes and shapes (see e.g. fig. 3). Therefore one of ordinary skill in the art would understand if Shiiki intended for layer 5 to vary it would have been described. Further, minor changes in the thickness of layer 5 would cause optical shaping. Shiiki does not teach any optical shaping. Therefore one of ordinary skill in the art would interpret the layer to be of constant thickness.

D. Regarding Appellant's argument for rejection of claims 18 and, 20 under 35 U.S.C. 103(a) over Kawae (2002/0080501) in view of Lin (2003/0098651):

Since Appellant's arguments towards claims 18 and 20 are identical to those for claim 7, the arguments are not persuasive for the reasons stated hereinabove.

E. The 35 U.S.C 103 rejection in view of Shiiki has been withdrawn, therefore the argument is moot.

F. As to claim 24, Appellant argues that layer 4/6 does not have to be of constant thickness. This argument is not found convincing since Reeh shows variation of shapes and sizes within the figures (see e.g. items 29 and 8). Therefore, if Reeh intended for the layer 4/6 to be non-constant, Reeh would have portrayed this feature. A prima facie case of obviousness has been provided, assuming *arguendo* that the Reeh reference must be interpreted so narrowly as not to teach a constant thickness in layer 4/6. Since this argument has not been addressed by Appellant, it therefore appears that Appellant is conceding that it would at least be obvious to form the layer of a constant thickness.

As to claim 22, Appellant argues that the 35 U.S.C. 103 rejection is based solely on hindsight derived from Appellants' specification. In response to Appellant's argument that the Examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971). In this case, the Mach reference teaches an advantage to using a single crystal phosphor including uniform white light production and longer life (see e.g. Mach's Background Section and Summary of Invention section). Therefore, a proper prima facie case of obviousness has been made.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

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